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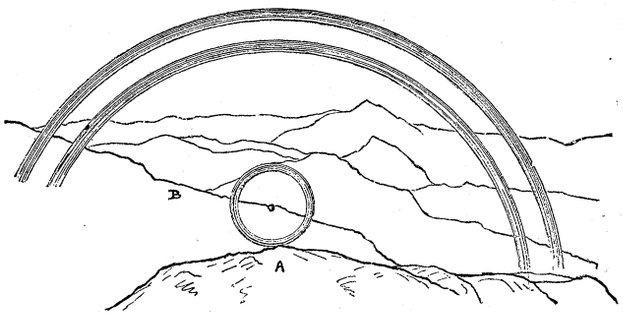
Triple Rainbow.

WITHIN a few months we have been twice favored with the following rainbow combination. In each case it occurred just before sunset. Two complete arcs rested on the mountains on one side, and descended into the valley of the Rimac on the other, while in the centre was a complete circle of smaller size. The point of observation (*A*) is 6,500 feet above sea-level. To the east are mountain-ranges rising to the Cordillera in the background. At the times of observation there were high clouds yielding a



gentle rain, by which undoubtedly the two ordinary arcs were caused. At the same time, however, a low, light cloud was drifting through the valley between *A* and *B*, and reaching nearly to the observer.

In this cloud the circle was formed. The indistinct shadow of the observer's head appeared at the centre (*O*), and the lower part of the circle was slightly obscured by the shadow of his body. The colors of the circle were not so brilliant as those of the arcs above. The circle also appeared less distant; but this apparent difference of distance was not so marked but that at first glance the three bows seemed to belong to the same system.

At a point an eighth of a mile nearer the sun, and hence farther from the cloud, only the two superior arcs were visible.

Mount Harvard, Peru, April 26. SOLON I. BAILEY.

BOOK-REVIEWS.

Pictorial Africa, its Heroes, Missionaries and Martyrs. New York, Fleming H. Revell. 4°.

Henry M. Stanley. By ARTHUR MONTEFIORE. New York, Fleming H. Revell. 16°. 75 cents.

THESE two books, both of which are by English authors, are intended as popular accounts of African discovery. The first, which is anonymous, is to a considerable extent a compilation, and gives a summary of most of the noted discoveries in the Dark Continent during the past hundred years, from those of Bruce and Mungo Park down to recent times. Stanley's work is but lightly touched upon, while that of Livingstone is described at great length, the compiler of the book being much interested in Christian missions. The volume contains a good deal of information about the various regions of Africa, their inhabitants and products; yet, as we have said, the work is popular rather than scientific, and it has the defects as well as the merits that popular books are apt to have. It is illustrated with a large number of engravings.

The little volume on Stanley's explorations is an abler work, and, though intended for popular reading, gives, nevertheless, a very good account of the various expeditions that Stanley has made, and of their most important results. It opens with a brief history of his early life, which shows clearly that the experiences he went through in those days helped to train him in the habits of self-reliance and ready resource that were afterward to be so useful to him and to the world. His trips to Abyssinia, Persia, Coomassie, and elsewhere are briefly noticed, and then begins the story of his great discoveries on the Kongo and elsewhere, closing with his arrival at Zanzibar with Emin Pacha. Mr. Montefiore's narrative covers all the more important incidents of the various expeditions, with special regard to their geographical and political significance,

Publications received at Editor's Office, May 26–June 7.

DYNAMICS, Syllabus of Elementary. Part I. Linear Dynamics. Prepared by the Association for the Improvement of Geometrical Teaching. London and New York, Macmillan. 39 p. 8°. 30 cents.

ELLIS, H. The Criminal. New York, Scribner & Welford. 337 p. 12°. $1.25.

FULLERTON, G. S. On Sameness and Identity. (Philosophical Series, No. 1.) Philadelphia, Univ. of Penn. 156 p. 8°.

GOMME, G. L. The Village Community. New York, Scribner & Welford. 299 p. 12°. $1.25.

LANKESTER, E. R. The Advancement of Science. Occasional Essays and Addresses. London and New York, Macmillan. 387 p. 8°. $3.

MAINE, Fifth Annual Report of the State Board of the State of, for the Fiscal Year Ending Dec. 31, 1889. Augusta, State. 304 p. 8°.

MINERAL Resources of Ontario, Report of the Royal Commission on the, and Measures for their Development. Toronto, Ont., Warwick & Sons, Pr. 566 p. 8°.

RELIGIO-PHILOSOPHICAL Journal. Vol. 1. No. 1. *w.* Chicago, J. C. Bundy. 16 p. f°. $2.50 per year.

SESSIONS, F. C. In Western Levant. New York, Welch, Fracker Co. 252 p. 12°.

THURSTON, R. H. Heat as a Form of Energy. Boston and New York, Houghton, Mifflin, & Co. 261 p. 12°. $1.25.

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